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LOST CREEK ISR, LLC

January 20, 2016

John Saxton, Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop T-8F5
11545 Rockville Pike,
Rockville, MD 20852

**RE: Copy of Non-Significant Revision #11 to Permit to Mine
Lost Creek Project PT788**

Dear Mr. Saxton,

Enclosed with this cover letter is Non-Significant Revision (NSR) #11 to the Permit to Mine for the Lost Creek ISR Project (LCI) PT788 as detailed on the enclosed copy of the submittal to WDEQ-LQD. The revision includes the updated baseline data calculation for the production zone of Mine Unit 1.

If you have any questions regarding this submittal please feel free to contact me at the Casper Office.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Michael D. Gaither'.

Michael D. Gaither
Manager EHS and Regulatory Affairs
Ur-Energy USA, Inc.

Attachments: **Copy of the NSR #11 Submittal to WDEQ-LQD**

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LOST CREEK ISR, LLC

January 20, 2016

Brian Wood
State of Wyoming
Department of Environmental Quality - Land Quality Division
510 Meadowview Drive
Lander, WY 82520

**RE: Submittal of Non-Significant Revision #11 to Permit to Mine
Lost Creek Project PT788**

Dear Mr. Wood,

Enclosed with this cover letter is Non-Significant Revision (NSR) #11 to the Permit to Mine for the Lost Creek ISR Project (LCI) PT788 as detailed on the index sheet. The primary purpose of the revision is to replace the baseline data calculations with the new calculations, reviewed and approved by the Safety and Environmental Review Panel (SERP), which include the added production zone monitor wells MP-114, MP-115, MP-116, MP-117, and MP-118. The monitor wells were added to provide a ratio of wells to pattern area (i.e. determined from the sum total area of each of the production zone sub-horizons individually) of 1 well per 4 acres as stipulated in Guideline 4 Reference Document 10.

If you have any questions regarding this submittal please feel free to contact me at the Casper Office.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael D. Gaither".

Michael D. Gaither
Manager EHS and Regulatory Affairs
Ur-Energy USA, Inc.

Attachments: **NSR Index Sheet**
Attachment MU1 4-1 Replacement Pages
Attachment MU1 4-2 Replacement Data Disc (electronic file)

Cc: John Saxton, NRC Project Manager (under separate cover)
Mark Newman, BLM Rawlins Office (under separate cover)
Ms. Theresa Horne, Ur-Energy, Littleton Office (via e-mail)

A bright yellow rectangular sticky note with handwritten text in black ink. The text reads "SAXTON" with an arrow pointing to the left.

INDEX SHEET FOR MINE PERMIT AMENDMENTS OR REVISIONS

Date: Jan 20, 2016

MINE COMPANY NAME: Lost Creek ISR, LLC MINE NAME: Lost Creek PERMIT NO.: PT0788

Statement: I, Michael Gaither, an authorized representative of Lost Creek ISR, LLC declare that only the items listed on this and all consecutively numbered Index Sheets are intended as revisions to the current permit document. In the event that other changes inadvertently occurred due to this revision, those unintentional alterations will not be considered approved. Please initial and date. MAG 1/20/2016

NOTES: 1) Include all revision or change elements and a brief description of or reason for each revision element.
 2) List all revision or change elements in sequence by volume number; number index sheets sequentially as needed.

VOLUME NUMBER	PAGE, MAP OR OTHER PERMIT ENTRY TO BE REMOVED	PAGE, MAP OR OTHER PERMIT ENTRY TO BE ADDED	DESCRIPTION OF CHANGE
Volume 6a: Mine Unit 1, Attachment 4-1 Water Quality Results	Remove "List of WQ Summaries in MU1 Attachment 4-1" (Nov10)	Add updated "List of WQ Summaries in MU1 Attachment 4-1" (Jan16)	Added additional MU1 production zone monitor well data (MP-114, MP-115, MP-116, MP-117, and MP-118)
Volume 6a: Mine Unit 1, Attachment 4-1 Water Quality Results	Remove "MP-Well Data – Water Quality Criteria Exceedances and Outliers" (Nov10) [4 pages]	Add "MP-Well Data Water Quality Criteria" (Jan16) [5 pages]	Added additional MU1 production zone monitor well data for the baseline data calculations.
Volume 6a: Mine Unit 1 Attachment 4-2 Original Water Quality Lab Results (electronic data set)	Remove compact disc with digital copy of MU1 Att 4-2 (Lab Reports)	Add compact disc with revised digital copy that includes Lab Reports: C15050689, C15050702, C15060122, C15060633, C15070021	Added digital copies of Lab reports for the MU1 additional production zone baseline data analysis

List of WQ Summaries in Attachment MU1 4-1

<i>M Wells</i>						<i>MO Wells</i>						<i>MP Wells</i>					
Well M-101				Well MO-101				Well MP-101									
Well M-102				Well MO-102				Well MP-102									
Well M-103				Well MO-103				Well MP-103									
Well M-104				Well MO-104				Well MP-104									
Well M-105				Well MO-105				Well MP-105									
Well M-106				Well MO-106				Well MP-106									
Well M-107				Well MO-107				Well MP-107									
Well M-108				Well MO-108				Well MP-108									
Well M-109				Well MO-109				Well MP-110									
Well M-110				Well MO-110				Well MP-111									
Well M-111				Well MO-111				Well MP-112									
Well M-112				Well MO-112				Well MP-113									
Well M-113				Well MO-113				Well MP-114									
Well M-114				<i>MU Wells</i>						Well MP-115							
Well M-115				Well MU-101				Well MP-116									
Well M-116				Well MU-102				Well MP-117									
Well M-117				Well MU-103				Well MP-118									
Well M-118				Well MU-104													
Well M-119				Well MU-105													
Well M-120A				Well MU-106													
Well M-121				Well MU-107													
Well M-122				Well KPW-2													
Well M-123				Well MU-109													
Well M-124				Well MU-110													
Well M-125				Well MU-111													
Well M-126				Well MU-112													
Well M-127				Well MU-113													
Well M-128																	

MP-Well Data
Water Quality Criteria
(1 of 5)

Parameters	Units	Parameter Values															
		MP-101				MP-102				MP-103				MP-104			
		4/23/09	5/7/09	5/21/09	6/4/09	4/23/09	5/7/09	5/21/09	6/4/09	4/23/09	5/7/09	5/21/09	6/4/09	4/22/09	5/6/09	5/20/09	6/3/09
Total Alkalinity as CaCO ₃	mg/L	121	119	119	119	112	111	111	112	110	105	81	108	93	97	107	107
CO ₃	mg/L	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
HCO ₃	mg/L	148	145	145	145	136	135	136	136	135	128	98	132	114	118	130	130
Dissolved Calcium	mg/L	77	80	84	80	60	60	64	61	73	74	58	77	78	77	85	83
Total Chloride	mg/L	6	6	6	6	4	4	4	5	5	5	5	6	9	9	9	9
Dissolved Fluoride	mg/L	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1
Dissolved Magnesium	mg/L	4	4	4	4	3	3	3	3	4	4	2	4	4	4	4	4
Total NH ₃ -N	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Dissolved NO ₃ +NO ₂ -N	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Dissolved Potassium	mg/L	3	3	2	2	2	2	2	2	2	3	7	3	5	4	4	4
Dissolved SiO ₂	mg/L	14.6	15.9	16.3	15.8	14.7	15	16.2	15.7	14.4	13.6	15	15.1	13.7	14.3	12.9	15.1
Dissolved Sodium	mg/L	30	31	28	31	28	28	26	25	32	33	30	34	38	32	37	36
Total SO ₄	mg/L	167	173	172	166	122	125	125	120	164	166	138	167	186	184	192	182
Specific Cond. at 25 °C	µmhos/cm	606	578	560	578	480	478	456	478	572	549	446	556	604	599	605	604
Laboratory pH	SU	7.91	7.94	7.89	7.9	7.87	7.97	7.88	7.93	7.83	7.83	312	404	398	419	425	415
TDS Dried at 180 °C	mg/L	391	410	425	394	314	325	340	347	375	376	312	404	398	419	425	415
Dissolved Aluminum	mg/L	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Dissolved Arsenic	mg/L	0.005	0.005	0.005	0.005	0.001	0.001	0.001	0.0005	0.0005	0.0005	0.017	0.0005	0.006	0.009	0.006	0.006
Dissolved Barium	mg/L	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Dissolved Boron	mg/L	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Dissolved Cadmium	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Dissolved Chromium	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Dissolved Copper	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Dissolved Iron	mg/L	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Dissolved Lead	mg/L	0.0005	0.0005	0.0005	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.0005	0.0005	0.0005
Dissolved Manganese	mg/L	0.02	0.02	0.02	0.02	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Dissolved Mercury	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Dissolved Molybdenum	mg/L	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Dissolved Nickel	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Dissolved Selenium	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Dissolved Uranium	mg/L	0.002	0.074	0.069	0.062	0.074	0.070	0.075	0.070	0.064	0.063	0.438	0.064	0.176	0.201	0.184	0.200
Dissolved Vanadium	mg/L	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Dissolved Zinc	mg/L	0.005	0.005	0.005	0.005	0.04	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.02	0.005	0.005
Total Iron	mg/L	0.02	0.04	0.04	0.04	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Total Manganese	mg/L	0.02	0.02	0.02	0.02	0.005	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.005
Gross Alpha	pCi/L	671	552	482	565	789	521	574	591	237	240	803	296	860	918	763	836
Gross Beta	pCi/L	236	159	121	144	267	170	159	161	92.2	120	330	123	324	225	239	219
Dissolved Ra-226	pCi/L	250	240	272	290	291	318	303	248	91	100	225	118	381	449	394	323
Dissolved Ra-228	pCi/L	6.4	5.7	5.2	4.3	5.8	4.5	4.3	4.1	2.1	2.7	4.2	1.7	6.5	3.9	5.3	7
Dissolved Ra-226+Ra-228	pCi/L	256.4	245.7	277.2	294.3	296.8	322.5	307.3	252.1	93.1	102.7	229.2	119.7	387.5	452.9	399.3	330

NOTES:

Red type means outlier

Blue type means ND. Half the detection limit used as value.

Parameter value exceeds WDEQ-WQD Domestic Class-of-Use (Class I).

Parameter value exceeds WDEQ-WQD Agriculture Class-of-Use (Class II).

Parameter value exceeds WDEQ-WQD Livestock Class-of-Use (Class III).

Parameter value exceeds EPA MCL criterion.

MP-Well Data
Water Quality Criteria
(2 of 5)

Parameters	Units	Parameter Values																							
		MP-105				MP-106				MP-107				MP-108				MP-109							
		4/23/09	5/7/09	5/21/09	6/4/09	4/22/09	5/6/09	5/20/09	6/3/09	4/22/09	5/6/09	5/20/09	6/3/09	4/22/09	5/6/09	5/20/09	6/3/09	4/22/09	5/6/09	5/20/09	6/3/09	12/1/09	12/16/09	1/5/10	2/2/10
Total Alkalinity as CaCO ₃	mg/L	71	75	106	87	107	106	106	106	127	130	127	122	111	108	109	110	110	108	109	110	73	55	69	74
CO ₃	mg/L	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	9	2.5	8	2.9
HCO ₃	mg/L	85	90	130	104	131	130	129	130	155	158	155	149	136	135	132	133	134	135	132	133	70	67	67	83
Dissolved Calcium	mg/L	48	56	75	56	59	63	54	57	48	44	35	40	63	71	69	65	53	45	51	51	7	7	7	6
Total Chloride	mg/L	5	5	6	5	4	4	4	5	6	5	5	6	6	5	5	5	5	5	5	5	7	7	7	7
Dissolved Fluoride	mg/L	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
Dissolved Magnesium	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.06	0.39	0.06	0.05	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Total NH ₃ -N	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.06	0.09	0.06	0.05	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Dissolved NO ₃ +NO ₂ -N	mg/L	8	8	2	6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Dissolved Potassium	mg/L	13.7	13.9	14.4	14.8	15	17.2	13.7	15.5	14	15.1	13.5	14.7	14.4	15.4	13.2	15.8	15.2	13.7	15.6	13	15	5	5	5
Dissolved SiO ₂	mg/L	32	34	30	32	32	29	29	30	64	65	72	57	32	30	32	30	32	29	30	32	29	35	35	35
Dissolved Sodium	mg/L	137	138	168	134	115	113	117	114	145	137	138	131	141	145	146	144	142	139	139	141	142	139	139	138
Total SO ₄	mg/L	472	460	536	470	455	456	453	453	571	544	533	523	523	517	503	520	456	423	455	449	423	455	449	
Specific Cond. at 25 °C	µmhos/cm	8.97	8.69	7.77	8.28	7.92	7.94	8.01	7.91	7.92	7.82	8.12	7.99	7.93	7.92	8.04	7.88	9.28	8.58	8.88	9.07	9.28	8.58	8.88	9.07
Laboratory pH	SU	309	306	385	343	304	305	317	275	361	372	388	355	347	352	356	343	313	294	290	236	313	294	290	236
Dissolved Aluminum	mg/L	0.019	0.019	0.0005	0.016	0.001	0.001	0.0005	0.001	0.004	0.010	0.005	0.004	0.008	0.007	0.007	0.007	0.002	0.002	0.001	0.001	0.002	0.002	0.001	0.001
Dissolved Arsenic	mg/L	0.5	0.5	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dissolved Barium	mg/L	0.5	0.5	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dissolved Boron	mg/L	0.5	0.5	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dissolved Cadmium	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Dissolved Chromium	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Dissolved Copper	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Dissolved Iron	mg/L	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Dissolved Lead	mg/L	0.001	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.001	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Dissolved Manganese	mg/L	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.01	0.03	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Dissolved Mercury	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Dissolved Molybdenum	mg/L	0.5	0.5	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dissolved Nickel	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Dissolved Selenium	mg/L	0.009	0.007	0.002	0.005	0.0005	0.0005	0.0005	0.0005	0.015	0.012	0.013	0.013	0.005	0.005	0.005	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Dissolved Uranium	mg/L	0.444	0.453	0.069	0.430	0.007	0.008	0.007	0.007	0.121	0.105	0.108	0.099	0.155	0.159	0.151	0.151	0.085	0.082	0.082	0.082	0.085	0.082	0.082	0.083
Dissolved Vanadium	mg/L	0.5	0.5	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dissolved Zinc	mg/L	0.03	0.005	0.005	0.005	0.02	0.005	0.01	0.005	0.05	0.01	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Total Iron	mg/L	0.015	0.015	0.015	0.015	0.035	0.05	0.05	0.05	2.47	2.38	4.1	0.83	0.035	0.04	0.03	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Total Manganese	mg/L	0.005	0.01	0.005	0.005	0.005	0.01	0.01	0.005	0.06	0.57	0.08	0.07	0.02	0.02	0.01	0.02	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Gross Alpha	pCi/L	823	914	305	751	35.7	25.6	23.8	24.7	160	165	678	162	265	355	248	325	107	136	148	109	136	148	136	148
Gross Beta	pCi/L	303	398	143	318	13.8	12.5	11.3	12	45.8	31.8	344	36.7	128	154	151	119	44.7	35.8	51.3	54.2	17	18	17	21
Dissolved Ra-226	pCi/L	227	242	97	498	7.1	7.7	7.5	7	6	2.9	15	3.5	66	79	64	76	17	18	17	18	17	18	17	21
Dissolved Ra-228	pCi/L	2.6	3	2.6	8.9	4.6	3.8	4.1	5.5	0.5	0.7	2.9	0.3	1.5	2	3.5	3.6	3.6	3	4.1	3.6	3	4.1	2.8	
Dissolved Ra-226+Ra-228	pCi/L	229.6	245	99.6	506.9	11.7	11.5	11.6	12.5	6.5	3.2	17.9	3.8	67.5	81	67.5	79.6	20.6	21	21.1	21.1	21.1	21.1	23.8	

NOTES:

Red type means outlier

Blue type means ND. Half the detection limit used as value.

Parameter value exceeds WDEQ-WQD Domestic Class-of-Use (Class I).

Parameter value exceeds WDEQ-WQD Agriculture Class-of-Use (Class II).

Parameter value exceeds WDEQ-WQD Livestock Class-of-Use (Class III).

Parameter value exceeds EPA MCL criterion.

MP-Well Data
Water Quality Criteria
(3 of 5)

Parameters	Units	Parameter Values																													
		MP-110						MP-111						MP-112						MP-113						MP-114					
		4/21/09	5/5/09	5/19/09	6/2/09	4/21/09	5/7/09	5/21/09	6/4/09	4/21/09	5/5/09	5/19/09	6/2/09	4/22/09	5/6/09	5/20/09	6/3/09	05/19/15	06/02/15	06/16/15	06/30/15										
Total Alkalinity as CaCO ₃	mg/L	104	103	105	108	94	120	108	110	47	35	33	39	101	99	106	105	103	107	110	114										
CO ₂	mg/L	2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5										
HCO ₃	mg/L	123	126	126	132	114	134	129	134	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5										
Dissolved Calcium	mg/L	51	50	54	53	46	56	60	55	36	32	33	38	66	58	66	63	66	67	69	70										
Total Chloride	mg/L	5	5	5	5	7	6	5	6	8	7	7	7	20	17	11	11	5	5	6	5										
Dissolved Fluoride	mg/L	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1										
Dissolved Magnesium	mg/L	2	2	3	3	2	2	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5										
Total NH ₃ -N	mg/L	0.05	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.08	0.08	0.025	0.025	0.025	0.025	0.025	0.025										
Dissolved NO ₃ +NO ₂ -N	mg/L	0.025	0.025	0.025	0.025	0.16	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025										
Dissolved Potassium	mg/L	16	12	10	8	2	7	6	5	13	11	10	9	7	5	5	4	9	7	6	5										
Dissolved SiO ₂	mg/L	15	14.3	13.6	16.8	15	13.7	14.8	14.5	12.6	13.4	11.6	15	12.6	14.3	11.9	13.7	15.9	15.8	15.9	15.6										
Dissolved Sodium	mg/L	38	35	34	33	32	35	33	34	38	37	36	40	40	34	37	35	33	31	31	30										
Total SO ₄	mg/L	128	128	129	130	95	132	131	127	126	127	126	128	143	142	148	146	132	135	137	130										
Specific Cond. at 25 °C	µmhos/cm	498	497	466	486	400	491	469	493	469	415	367	405	567	551	529	531	483	498	495	509										
Laboratory pH	SU	8.41	8.38	8.26	8.14	8.08	8.61	8.49	8.31	8.40	8.48	8.30	8.30	8.95	8.9	8.64	8.57	7.96	7.98	7.92	7.99										
TDS Dried at 180 °C	mg/L	328	314	328	341	259	340	348	340	279	281	257	240	379	366	370	371	332	328	336	338										
Dissolved Aluminum	mg/L	0.05	0.05	0.05	0.05	0.005	0.005	0.005	0.005	0.022	0.026	0.027	0.027	0.006	0.004	0.004	0.004	0.004	0.004	0.004	0.003										
Dissolved Arsenic	mg/L	0.009	0.007	0.005	0.005	0.005	0.005	0.005	0.005	0.03	0.3	0.2	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05										
Dissolved Barium	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05										
Dissolved Boron	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05										
Dissolved Cadmium	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025										
Dissolved Chromium	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025										
Dissolved Copper	mg/L	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005										
Dissolved Iron	mg/L	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015										
Dissolved Lead	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005										
Dissolved Manganese	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005										
Dissolved Mercury	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005										
Dissolved Molybdenum	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05										
Dissolved Nickel	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025										
Dissolved Selenium	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005										
Dissolved Uranium	mg/L	0.241	0.254	0.254	0.275	0.320	0.297	0.295	0.273	0.263	0.301	0.408	0.405	0.184	0.144	0.138	0.142	0.171	0.181	0.180	0.171										
Dissolved Vanadium	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05										
Dissolved Zinc	mg/L	0.05	0.01	0.04	0.005	0.05	0.005	0.005	0.005	0.04	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005										
Total Iron	mg/L	0.015	0.035	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.035	0.015	0.035	0.035	0.015	0.015	0.015	0.015	0.015	0.015	0.015										
Total Manganese	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005										
Gross Alpha	pCi/L	2040	1700	1680	1460	300	1190	1380	1010	554	635	885	760	1270	682	1260	1050	169	141	151	127										
Gross Beta	pCi/L	816	646	507	479	111	457	399	337	275	270	261	271	466	385	340	351	26.9	21.8	36	27.8										
Dissolved Ra-226	pCi/L	732	689	675	698	6.3	411	445	155	121	127	120	120	515	595	530	568	21	21	15	14										
Dissolved Ra-228	pCi/L	5.6	10.8	5.9	7	1.5	5	4.2	6.2	1.9	2	2.4	2.2	4.6	6.8	5	5.8	2	1.3	3.1	2										
Dissolved Ra-226+Ra-228	pCi/L	737.6	689	680.9	705	7.8	416	415.2	451.2	156.9	123	129.4	122.2	519.6	601.8	535	573.8	23	22.3	18.1	16										

NOTES:

Red type means outlier

Blue type means ND. Half the detection limit used as value.

Parameter value exceeds WDEQ-WQD Domestic Class-of-Use (Class I).

Parameter value exceeds WDEQ-WQD Agriculture Class-of-Use (Class II).

Parameter value exceeds WDEQ-WQD Livestock Class-of-Use (Class III).

Parameter value exceeds EPA MCL criterion.

MP-Well Data
Water Quality Criteria
(4 of 5)

Parameters	Units	Parameter Values															
		MP-115				MP-116				MP-117				MP-118			
		05/18/15	06/02/15	06/16/15	06/30/15	05/18/15	06/02/15	06/16/15	06/30/15	05/18/15	06/02/15	06/16/15	06/30/15	05/18/15	06/02/15	06/16/15	06/30/15
Total Alkalinity as CaCO ₃	mg/L	100	102	99	100	128	129	119	122	116	117	118	123	113	106	110	120
CO ₃	mg/L	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
HCO ₃	mg/L	118	123	121	122	156	158	145	148	142	142	144	150	137	129	134	146
Dissolved Calcium	mg/L	70	68	67	66	80	82	81	80	103	99	98	96	74	70	72	76
Total Chloride	mg/L	5	5	6	6	5	6	6	6	6	6	6	6	5	5	5	6
Dissolved Fluoride	mg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Dissolved Magnesium	mg/L	3	3	3	3	4	4	4	4	4	4	4	4	3	3	3	4
Total NH ₃ -N	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Dissolved NO ₃ +NO ₂ -N	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dissolved Potassium	mg/L	5	5	5	5	4	5	4	4	4	4	4	4	3	3	3	3
Dissolved SiO ₂	mg/L	14.4	14.5	14.4	14.3	15.6	16.1	16.1	16.1	15.5	15.3	15.5	15.2	15.2	15.2	15.2	15.4
Dissolved Sodium	mg/L	32	31	31	30	33	33	32	31	35	33	35	34	31	31	30	30
Total SO ₄	mg/L	139	141	143	140	155	162	157	154	203	206	193	196	139	139	135	137
Specific Cond. at 25 °C	µmhos/cm	493	504	489	494	555	568	553	564	634	649	631	650	500	501	501	524
Laboratory pH	SU	8.29	8.29	8.18	8.21	7.65	7.74	7.72	7.8	7.96	7.93	7.88	7.89	7.93	7.96	7.84	7.96
TDS Dried at 180 °C	mg/L	338	332	330	327	384	382	381	378	449	455	441	444	346	337	350	344
Dissolved Aluminum	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dissolved Arsenic	mg/L	0.005	0.005	0.004	0.004	0.005	0.004	0.004	0.004	0.008	0.004	0.003	0.003	0.004	0.003	0.003	0.003
Dissolved Barium	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dissolved Boron	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dissolved Cadmium	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Dissolved Chromium	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Dissolved Copper	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Dissolved Iron	mg/L	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Dissolved Lead	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Dissolved Manganese	mg/L	0.005	0.005	0.005	0.005	0.01	0.01	0.01	0.01	0.005	0.005	0.005	0.005	0.01	0.01	0.01	0.02
Dissolved Mercury	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Dissolved Molybdenum	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dissolved Nickel	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Dissolved Selenium	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Dissolved Vanadium	mg/L	0.136	0.134	0.125	0.114	0.141	0.144	0.127	0.113	0.759	0.758	0.638	0.574	0.091	0.078	0.079	0.067
Dissolved Uranium	mg/L	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dissolved Zinc	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Total Iron	mg/L	0.015	0.015	0.015	0.015	0.33	0.32	0.23	0.16	0.08	0.11	0.12	0.08	0.29	0.33	0.38	0.48
Total Manganese	mg/L	0.005	0.005	0.005	0.005	0.01	0.01	0.01	0.02	0.005	0.005	0.005	0.005	0.01	0.01	0.01	0.02
Gross Alpha	pCi/L	696	598	628	612	313	204	311	284	583	655	604	737	636	340	405	416
Gross Beta	pCi/L	78.8	53	184	55.5	77.5	48.4	117	42.2	132	106	135	86.2	115	44.6	71.3	41.3
Dissolved Ra-226	pCi/L	377	414	379	445	165	174	185	163	106	126	2.2	113	248	241	172	255
Dissolved Ra-228	pCi/L	6.3	4.9	8	4.2	2.9	7	4.3	1.9	3	3.9	1.7	2.1	3	3.5	4.7	1.6
Dissolved Ra-226+Ra-228	pCi/L	383.3	418.9	387	449.2	167.9	181	189.3	164.9	109	129.9	3.9	115.1	261	244.5	176.7	256.6

NOTES:

Red type means outlier

Blue type means ND. Half the detection limit used as value.

Parameter value exceeds WDEQ-WQD Domestic Class-of-Use (Class I).

Parameter value exceeds WDEQ-WQD Agriculture Class-of-Use (Class II).

Parameter value exceeds WDEQ-WQD Livestock Class-of-Use (Class III).

Parameter value exceeds EPA MCL criterion.

MP-Well Data
Water Quality Criteria
(5 of 5)

Parameters	Units	Outlier Tolerance Interval Calculation						Values with Outliers (if any) Removed						
		No. of Obs.	Mean	TLF	Standard Deviation	Lower Range	Upper Range	No. of Obs.	Minimum	Mean	Maximum	Standard Deviation	Mean ± 3 Standard Deviations	
Total Alkalinity as CaCO ₃	mg/L	72	102.56	3.002	21.451	38.16	166.95	72	33	103	130	21	38	167
HCO ₃	mg/L	72	2.38	3.002	3.904	-9.34	14.10	70	0.5	1.8	9.0	2.0	-4.2	7.9
Dissolved Calcium	mg/L	72	121.97	3.002	31.969	26.00	217.94	70	41	125	158	25	51	200
Total Chloride	mg/L	72	64.53	3.002	15.643	17.57	111.49	72	32	65	103	16	18	111
Dissolved Fluoride	mg/L	72	6.22	3.002	2.552	-1.44	13.88	72	4	6	20	3	-1	14
Dissolved Magnesium	mg/L	72	0.15	3.002	0.053	-0.01	0.31	72	0.1	0.2	0.3	0.1	0.0	0.3
Total NH ₃ -N	mg/L	72	2.83	3.002	1.000	-0.17	5.84	72	1	3	5	1	0	6
Dissolved NO ₃ +NO ₂ -N	mg/L	72	0.04	3.002	0.054	-0.13	0.20	70	0.025	0.028	0.080	0.012	-0.007	0.063
Dissolved Potassium	mg/L	72	4.68	3.002	2.983	-4.27	13.63	72	0.025	0.037	0.160	0.021	-0.025	0.099
Dissolved SiO ₂	mg/L	72	14.71	3.002	1.092	11.43	17.98	72	2.0	4.7	16.0	3.0	-4.3	13.6
Dissolved Sodium	mg/L	72	34.28	3.002	8.058	10.09	58.47	72	11.6	14.7	17.2	1.1	11.4	18.0
Total SO ₄	mg/L	72	144.85	3.002	22.667	76.80	212.89	72	25	34	72	8	10	58
Specific Cond. at 25 °C	µmhos/cm	72	513.19	3.002	60.626	331.20	695.19	72	367	513	650	61	331	695
Laboratory pH	SU	72	8.25	3.002	0.556	6.58	9.92	72	7.65	8.25	10.70	0.56	6.58	9.92
TDS Dried at 180 °C	mg/L	72	348.47	3.002	48.527	202.79	494.15	72	236	348	455	49	203	494
Dissolved Aluminum	mg/L	72	0.19	3.002	0.202	-0.42	0.79	72	0.05	0.19	0.50	0.20	-0.42	0.79
Dissolved Arsenic	mg/L	72	0.01	3.002	0.006	-0.01	0.02	72	0.001	0.006	0.027	0.006	-0.013	0.025
Dissolved Barium	mg/L	72	0.18	3.002	0.203	-0.43	0.78	72	0.05	0.18	0.50	0.20	-0.43	0.78
Dissolved Boron	mg/L	72	0.18	3.002	0.203	-0.43	0.78	72	0.05	0.18	0.50	0.20	-0.43	0.78
Dissolved Cadmium	mg/L	72	0.00	3.002	0.000	0.00	0.00	72	0.0025	0.0025	0.0025	0.000	0.0025	0.0025
Dissolved Chromium	mg/L	72	0.03	3.002	0.000	0.00	0.03	72	0.025	0.025	0.025	0.000	0.025	0.025
Dissolved Copper	mg/L	72	0.01	3.002	0.001	0.00	0.01	72	0.005	0.005	0.010	0.001	0.002	0.008
Dissolved Iron	mg/L	72	0.02	3.002	0.015	-0.03	0.06	72	0.015	0.017	0.140	0.015	-0.027	0.061
Dissolved Lead	mg/L	72	0.00	3.002	0.000	0.00	0.00	72	0.0005	0.0006	0.0020	0.0003	-0.0004	0.0015
Dissolved Manganese	mg/L	72	0.01	3.002	0.009	-0.02	0.04	72	0.01	0.01	0.04	0.01	-0.02	0.04
Dissolved Mercury	mg/L	72	0.00	3.002	0.000	0.00	0.00	72	0.0005	0.0005	0.0005	0.0000	0.0005	0.0005
Dissolved Molybdenum	mg/L	72	0.18	3.002	0.203	-0.43	0.78	72	0.05	0.18	0.50	0.20	-0.43	0.78
Dissolved Nickel	mg/L	72	0.03	3.002	0.000	0.00	0.03	72	0.025	0.025	0.025	0.000	0.025	0.025
Dissolved Selenium	mg/L	72	0.00	3.002	0.004	-0.01	0.01	71	0.0005	0.0019	0.0150	0.0033	-0.0080	0.0119
Dissolved Uranium	mg/L	72	0.19	3.002	0.163	-0.30	0.68	72	0.007	0.191	0.759	0.163	-0.299	0.681
Dissolved Vanadium	mg/L	72	0.18	3.002	0.203	-0.43	0.78	72	0.05	0.18	0.50	0.20	-0.43	0.78
Dissolved Zinc	mg/L	72	0.01	3.002	0.012	-0.02	0.04	72	0.005	0.010	0.050	0.012	-0.025	0.045
Total Iron	mg/L	72	0.50	3.002	2.840	-6.02	9.03	71	0.02	0.17	4.10	0.57	-1.52	1.87
Total Manganese	mg/L	72	0.02	3.002	0.067	-0.18	0.22	71	0.01	0.01	0.08	0.01	-0.03	0.05
Gross Alpha	pCi/L	72	582.43	3.002	430.556	-710.10	1874.96	72	24	582	2040	431	-709	1874
Gross Beta	pCi/L	72	185.67	3.002	162.791	-303.03	674.37	72	11	186	816	163	-303	674
Dissolved Ra-226	pCi/L	72	225.08	3.002	200.660	-377.30	827.46	72	2	225	732	201	-377	827
Dissolved Ra-228	pCi/L	72	3.97	3.002	2.037	-2.15	10.08	72	0.3	4.0	10.8	2.0	-2.1	10.1
Dissolved Ra-226+Ra-228	pCi/L	72	228.90	3.002	201.766	-376.80	834.60	72	3.2	228.9	737.6	201.8	-376.4	834.2

TLF = Tolerance Limit Factor

NOTES:

Red type means outlier

Blue type means ND. Half the detection limit used as value.

Parameter value exceeds WDEQ-WQD Domestic Class-of-Use (Class I).

Parameter value exceeds WDEQ-WQD Agriculture Class-of-Use (Class II).

Parameter value exceeds WDEQ-WQD Livestock Class-of-Use (Class III).

Parameter value exceeds EPA MCL criterion.